

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Bennett M. Richard et al	§	Examiner:	Jermie E. Cozart
		§		
Serial No.:	10/695,205	§	Group Art Unit:	3672
		§		
Filing Date:	October 28, 2003	§	Docket No.	D5407-216
		§		
Title:	Downhole Screen	§		
	Manufacturing Method	§		

Mail Stop Appeal Brief Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

APPELLANT'S BRIEF

I. Real Party in Interest

The real party in interest is Baker Hughes Incorporated.

II. Related Appeals and Interferences

There are no related appeals or interferences.

III. Status of the Claims

Claims 1, 2, 4-7, 9 and 12-14 are finally rejected.

Claims 10, 11 and 15-17 are allowed.

IV. Status of Amendments

A Second Amendment after Final Rejection was mailed October 27, 2006 and was entered in an Advisory Action mailed November 16, 2006. This Advisory Action incorrectly listed claims 5 and 9 as still being objected to because the entered Second Amendment after Final Rejection cured the objections to claims 5 and 9. Claim 8 was canceled in this amendment.

V. Summary of the Claimed Subject Matter

In the only rejected independent claim in this appeal, claim 1, is graphically illustrated in FIG. 4 where the base pipe 10 is expanded into the screen 14 by a swage 20 to secure the two together. The base pipe is inserted in the screen and the base pipe is expanded from within until the two become attached to each other. This is described in the specification on page 3 in paragraph 15.

VI. Grounds for Rejection to be Reviewed on Appeal

1. Are claims 1, 2, 4, and 6-8 anticipated under §102 by Echols USP 6,941,652?
2. Are claims 12-14 obvious under §103 in view of Echols USP 6,941,652?

VII. Argument

This is a very simple case. Claim 1 is a two step method: inserting a base pipe into a filter layer and attaching them together by expansion of the base pipe. That's it!

Yet the problem during prosecution that has made this appeal necessary is that the Examiner has failed to recognize the difference between taking a fully assembled screen that has a base pipe and filter layer already assembled to each other and running the assembly in the well and expanding that assembly downhole, on the one hand, and, on the other hand, taking a base pipe and expanding it into a filter layer to initially assemble the screen before running it in the well.

In the former, the assembled filter is expanded downhole to reduce or eliminate an annular space around the screen to reduce the extent of the need to pack such annular space with gravel as a filtration aid or, better yet to eliminate that need altogether. Applicant doesn't dispute that the Echols reference teaches the expansion from within the base pipe of an assembled screen assembly 36 after it is run down the wellbore. As stated in column 4 lines 49-55:

The well screen 36 may be radially expanded utilizing any of various methods. For example, a swage may be passed through the base pipe 38, fluid pressure may be applied to a membrane positioned within the base pipe, etc. Thus, any method of expanding the well screen 36 may be used without departing from the principles of the present invention.

However, the Examiner has steadfastly refused to acknowledge that this expansion is occurring downhole after the screen assembly has been built and run downhole. Claim 1 is about how to build a screen and not about what to do with it once it is built and run in the wellbore.

The Echols reference talks about how the screen assembly 36 is put together. First, as shown in FIG. 2, an outer shroud 42a for the screen assembly 36 is laid flat and an assembly of screen layers 48-52 are placed on top and preferably attached by diffusion bonding (column 5 line 55 to column 6 line 21).

Then, the flat sheet is trimmed to a dimension and rolled into a tube and seam welded at 56, as shown in FIG. 3. The screen material 40 is now in the interior of this tube structure (column 6 lines 22-32).

Then, the base pipe 38, FIG. 4, is inserted into the tube, FIG. 3, made up of shroud 42 with the filter layers 40a already attached to it. Welds 58, FIG. 5, attach the base pipe to the FIG.3 assembly of the jacket with the screen layers inside of it. Here's how the specification (column 6 lines 33-41) describes this, the actual method of assembly of the screen in Echols:

"After the fabrication of the shroud 42 is completed, the perforated tubular base pipe 38 (see FIG. 4) is telescoped into the interior of the shroud 42 (see FIGS. 5 and 6), thereby sandwiching the filter media 40 between the base pipe 38 and the shroud 42 (see FIGS. 6 and 7). The filter media-lined shroud 42 is then suitably anchored to the base pipe 38, such as by annular welds 58 (see FIG. 5) extending around the opposite ends of the shroud 42."

The present application paragraph 2 describes that using welding is a bad thing as in service these welds tended to fail. The Echols reference discusses base pipe expansion but not in context of avoiding connections known to fail downhole as disclosed in the application. Echols goes directly for the welding solution of securing the filter material to the base pipe despite his knowledge that techniques exist for base pipe expansion of the finished screen assembly downhole. In essence, Echols teaches away from the claimed method of assembling a screen assembly by failing to recognize that expansion of the

base pipe is a technique to attach a screen layer to it. As a result of the claim 1 method, the finished product is serviceable downhole, particularly when the assembly is expanded downhole and under conditions where the base pipe is under large tension loads that would otherwise have caused weld failure if the Echols technique of fabrication were used. Large differential pressures on the screen can cause it to flex breaking welded connections in the Echols design. Expansion of the base pipe to connect it to the surrounding screen assembly solves this screen construction problem. These issues in initial screen assembly fabrication are totally unrecognized in Echols despite the fact that he discusses expansion of the fully assembled screen after it is run downhole.

The Examiner repeatedly points to column 5 lines 1-4 where it states as follows:

“It will be readily appreciated that, when the base pipe 38 is expanded radially outwardly, the filter media 40 will be radially compressed between the shroud 42 and the base pipe 38.”

This portion of the specification describes what happens when the already assembled screen assembly is run down the wellbore and expanded there as part of a tubing string. This is not done when the base pipe is attached to the screen tube into which it is inserted during initial fabrication. Claim 1 is about the initial fabrication. The Examiner jumps around the Echols reference giving it a meaning that is not there by virtue of his confusion between the disclosed Echols method of running the finished product and the Echols method of fabrication of the underlying product. Claim 1 is about how to fabricate the underlying product. The Echols reference, when properly applied to claim 1, requires reading of columns 5-6 where the fabrication method is described. In the end, the Echols product suffers from the failures for welded connections in fabrication described in paragraph 2 of the present application. In no way does the Echols initial

fabrication method teach using expansion of the base pipe to secure it to the screen that surrounds it

Claim 1 and all the claims that depend on it are novel and unobvious over Echols.

Respectfully submitted,

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VIII. Claims Appendix

1. A method of manufacturing a screen for downhole use, comprising:
inserting a base pipe into a filter layer;
securing said filter layer to said base pipe by expanding said base pipe.
2. The method of claim 1, comprising:
creating an interference fit between said base pipe and said filter layer.
4. The method of claim 1, comprising:
reducing the size of said filter layer.
5. The method of claim 1, comprising:
accomplishing said securing said filter layer to said base pipe without welding,
adhesives or mechanical connectors.
6. The method of claim 1, comprising:
inserting said base pipe and filter layer downhole;
expanding said base pipe downhole.
7. The method of claim 1, comprising:
mounting a protective jacket to said filter layer before inserting said base pipe.
9. The method of claim 2, comprising:
accomplishing said securing said filter layer to said base pipe without welding,
adhesives or mechanical connectors.
12. The method of claim 1, comprising:
expanding said base pipe for at least a portion of the length of said filter layer.
13. The method of claim 12, comprising:
expanding said base pipe near the ends of said filter layer.

14. The method of claim **12**,comprising:
- expanding said base pipe for the entire length of said filter layer and beyond.

IX. Evidence Appendix

Appellant relies on the Echols USP 6,941,652 made of record by the Examiner.

X. Related Proceedings Appendix

There are no related proceedings.

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